

# PATENT SPECIFICATION

716,746



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## COMPLETE SPECIFICATION

### An Air Conditioning Cover for use on Beds or for Covering parts of the Human Body

I, ROWLAND VANCE LEE, of 22401 Roscoe Boulevard, Canoga Park, State of California, United States of America, a Citizen of the United States of America, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 The present invention relates to an air conditioning cover for use on beds, or for otherwise cooling or heating a person, or particular portions thereof.

Prior devices used as bed covers or limb 15 or body enclosures have been relatively bulky, cumbersome to handle, and have involved more or less complicated and even dangerous control systems. As a result, few of these have been widely accepted by 20 the public.

It is an object of this invention to provide a cooling or heating cover and conditioning means therefor, which is light, simple, and inexpensive.

25 Another object is to provide an air conditioned body cover which is flexible, attractive, and lies absolutely flat when not in use, so that it can be easily folded and compactly stored.

30 Other objects and advantages will be evident from the detailed specification to follow after the next few paragraphs.

Briefly, my invention in coverlet form comprises a pair of super-imposed conventional bed sheets or similar cloths secured to each other around the edges and quilted, a preferred distance apart, over the remaining area of the sheets. An opening is provided at one end of the sheets into 40 which one end of a flexible air conduit is airtightly fastened. The other end of the flexible conduit is connected to a source of forced cool or warm air, which inflates the sheets between the quilted fastenings and 45 escapes slowly out through the pores of the sheets, uniformly over the entire sheet

areas. When only a portion of the body is to be covered, the quilted structure is shaped accordingly.

The present invention may be more fully 50 understood by reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of a complete air conditioning device embodying this invention, with the sheets flat together in the 55 deflated condition.

Fig. 2 is a cross sectional view of the pair of sheets inflated, showing the manner of quilting.

Fig. 3 is a cross sectional view showing 60 the same portion of the assembly of Fig. 2, but in the flat condition.

Fig. 4 is another cross sectional view, showing details of the quilting ties.

Fig. 5 is a perspective view of the 65 present invention in use, showing the quilt-like appearance of the cover.

Fig. 6 is an elevation view of the air conditioning device as it might be packed 70 when not in use.

Fig. 7 is a perspective view showing the use of a smaller type arrangement of this invention as a "thermal sleeve" for the arm of a person.

Referring first to Figs. 1 to 3 for a detailed 75 description of a preferred embodiment of the present invention, a cover 1 comprises an upper sheet 2 and a lower sheet 3, each preferably consisting of the usual muslin or percale sheeting. The sheets 2 and 3 80 are closely stitched together around the edges thereof, as shown at 4. At one end of the cover, the fastening of the sheets together is interrupted to provide an opening 5 for entrance of one end of a duct 6, 85 which is preferably stitched or otherwise permanently secured in the opening 5 to form a substantially airtight connection. The duct 6 is constructed of non-porous flexible material, is preferably several feet 90 long, and is of sufficient diameter to conduct the required amount of air flow to the

cover 1, as will be discussed later. The other end of the duct 6, opposite from the cover 1, is removably fastened over an outlet connection 8 of an air supply unit 9, as by an elastic band sewn into a hem at the end of the duct 6, for example.

The supply unit 9 contains a fan 10, an air inlet grill 11, and any other air conditioning equipment which may be desired as, for example, a heater unit 12 comprising an electrical heating element (not shown through which the air handled by the fan 10 passes, and an air filter (not illustrated). A power cord 14 is connected to the supply unit 9, and a remote control box 15 is connected to the supply unit by an electric cord 16. Or, the switches, thermostatic control, etc., for control of warm or cool air may be mounted directly on the side of the supply unit 9, if desired. Under certain circumstances only fan 10 is needed.

Referring now to Figs. 2, 3, and 4, in particular, the sheets 2 and 3 are quilted at intervals. The components of this feature, for example, can comprise tie-down threads 18, formed by sewing a single thread from the top sheet down through the bottom sheet and then bringing this thread back through the top sheet again, where a simple square knot 19 is made and the two ends clipped, as shown in Fig. 4. It will be noted that the tie-down threads 18 are loose or may be flexible to allow separation of the sheets for a substantial distance, preferably to give the inflated cover a maximum thickness from two to five inches when internal pressure is present. When quilted in this manner and inflated, air circulation between the sheets 2 and 3 is facilitated, and the cover 1 has the appearance of a tufted comforter and is, therefore, slightly in use.

Fig. 5 shows the air conditioning cover 1 in use, having the remote control box 15 placed within reach of the user. In operation, when the fan 10 is turned on, air is taken into the supply unit 9 and forced through the duct 6 to the cover 1, where it fills the space between the sheets 2 and 3 and inflates the cover. The duct 6 can be as small as will still allow plenty of air flow to cause inflation of the cover throughout the whole area thereof. Thereafter, a slow, continuous passage of air occurs through the duct and out through the porous sheeting at all points, both above and below the cover. Thus, fresh air is supplied through the lower sheet 3 to the space between the lower sheet 3 and the person using it, and thence out between the lower sheet 3 and the bed, particularly around the head of the user.

While the device as described herein has incorporated a heating and control unit,

the latter may of course be omitted. In fact, one of the best and most useful arrangements, as well as the simplest, includes only the fan 10 and the inlet casing, to circulate ambient air through the duct 6 and cover 1. This particular device has proved highly satisfactory for cool sleeping in the tropics. In all cases, the cover forms a very good heat insulator, since the passage of air outwardly through the upper sheet 2 serves to prevent outside heat or cold from being transmitted inwardly to the person in the bed.

An important feature of the present invention is that the cover, when deflated, is permitted to lie absolutely flat, as shown in Fig. 3, just as two sheets would ordinarily do. No creases or puckers are trapped in the deflated cover by this means of holding the sheets together, and the deflated cover readily serves as a counterpane for a bed. Likewise, the cover is easily and conveniently folded for shelving, or stowing within the air supply unit 9, as shown in Fig. 6. A carrying case 20, secured along one full side of the supply unit 9, is provided for the latter purpose.

The present device has many obvious beneficial uses, for patients requiring warmth or heat, as well as air conditioning means during hot or cold weather. Due to its extreme lightness and flexibility, it causes no harmful pressure on persons suffering from burns, arthritis, skin infections, or wounds.

In addition to its principal use as a full bed cover, the same sheet construction and material can, of course, be incorporated into just an arm, leg, or torso covering, for example, in the manner shown in Fig. 7. Here a thermal sleeve 22 is provided by forming the doubled cover structure into a continuous, cylindrical shape, with the ends tied snugly around an arm of a patient. The air supply conduit 23 may be built into the outer sheet of the sleeve 22 at any desired point, preferably about midway between the ends.

It should be noted that due to the quilted effect the sheet next to the body touches the body only at the areas Z intermediate the quilting threads 18, as indicated on the body line X—X in Fig. 2. This feature provides the spaces Y (Fig. 2) adjacent the quilting threads 18 into which air can diffuse prior to contacting the body of the person covered. Thus, maximum internal air flow is maintained, as only a minimum of inner sheet surface is covered by bodily contact. Furthermore, as areas Z are spaced one from another over the entire inner sheet, air diffusing into spaces Y can readily pass outwardly in all directions to cool the body areas exposed to spaces Y. Thus, all of the body area covered by the

sheet except the areas Z is cooled by free-flowing air. As the areas Z will be small, a high percentage of the surface of the body covered by the air conditioning cover 5 will be constantly bathed in freely flowing cool or hot air.

What I claim is:—

1. An air conditioning cover, including a pair of superimposed porous fabric sheets 10 secured to each other around the edges thereof except for one entrance opening between said sheets to form a cover, said cover being inflatable through said opening and held to a predetermined inflation solely 15 by loose ties therebetween at desired intervals, and means for delivering air into said opening to inflate said cover while said air diffuses outwardly through the pores of said sheets.

2. An air conditioning cover as set forth in Claim 1, including flexible non-porous duct means secured to said entrance opening, and in which the means for delivering 25 air is a fan positioned to force ambient air through said duct means into said cover, whereby a body by said cover is contacted by slowly moving ventilating air.

3. An air conditioning cover as set forth in Claim 1 or 2, in which said sheets are 30 of equal area and said ties are threads arranged to permit a completely flat form of said cover when deflated.

4. An air conditioning cover as set forth in Claim 1, 2 or 3, in which said sheets are 35 of equal area and said ties are lengths of threads allowing a desired separation of said sheets at the tie-down points when said cover is inflated.

5. An air conditioning cover as set forth in Claims 1 to 4, in which the loose ties 40 are quilting threads connected between opposite points on said sheets, said threads being long enough to allow separation of said sheets at the quilting points.

6. An air conditioning cover as set forth 45 in Claims 1 to 4, in which said sheets are conventional bed sheets and said ties are threads loosely connected between opposite respective points of said sheets and of a length to give the inflated cover a maxi- 50 mum thickness of between two and five inches.

7. An air conditioning cover as set forth in Claims 1 to 6, in which the fan for delivering air is located in an air supply 55 unit having an air inlet, a heater unit, and a remote control box.

8. An air conditioning cover as set forth in Claims 5 or 7, in which a quilting effect 60 in the sheets created by the loose quilting threads when the cover is inflated provides spaces adjacent said threads and body contact areas intermediate said threads, where- 65 by air can diffuse through the lower porous sheet into said spaces prior to contacting a body to be air conditioned.

9. An air conditioning cover, substantially as described and shown in the accompanying drawings, and for the purpose set 70 forth.

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FIG 1

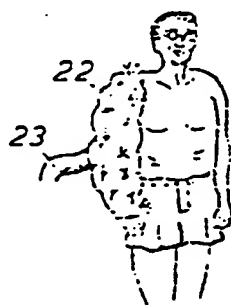
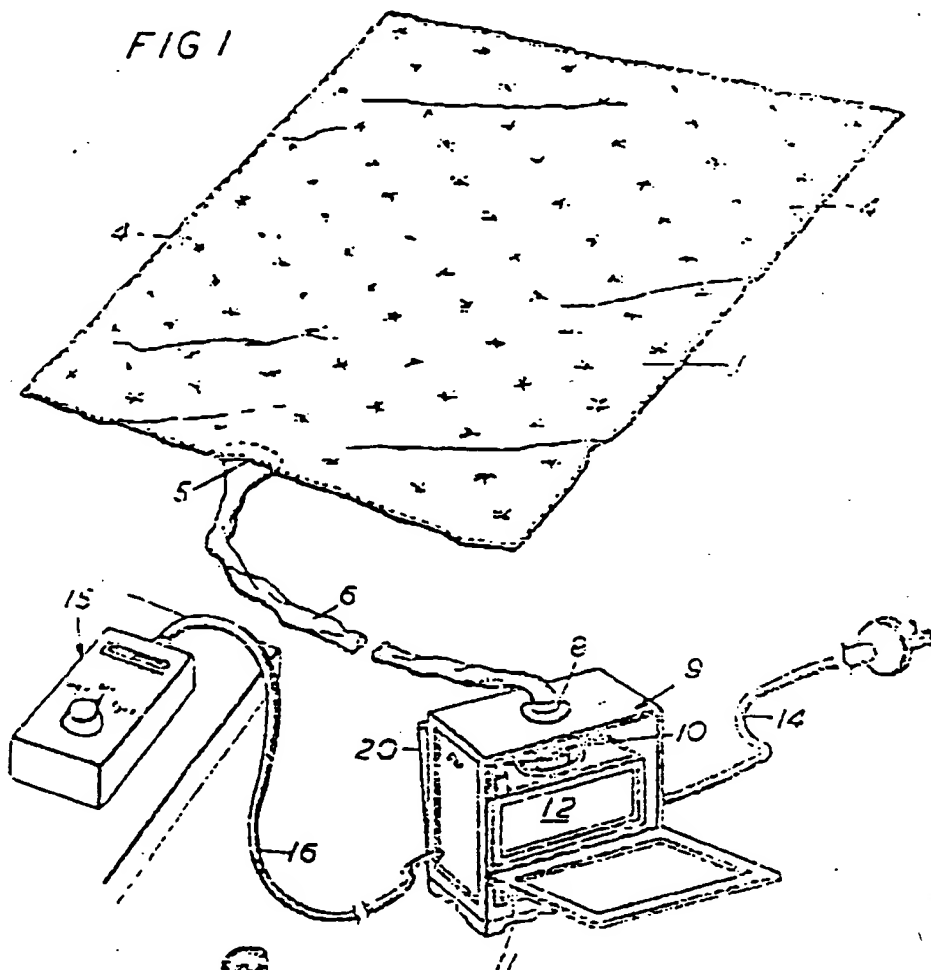


FIG. 7

716,746  
2 SHEETS

COMPLETE SPECIFICATION  
This drawing is a reproduction of  
the Original on a reduced scale  
SHEETS 1 & 2

FIG. 2.

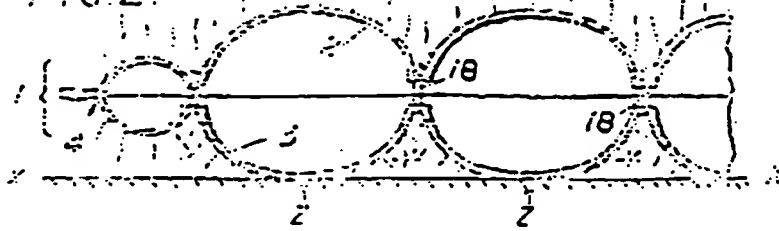


FIG. 3.

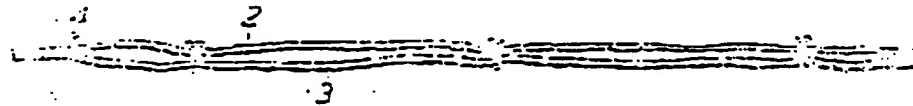


FIG. 4.

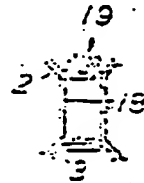


FIG. 6.

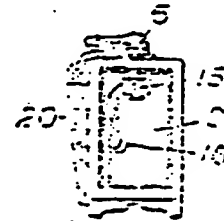


FIG. 5.

